



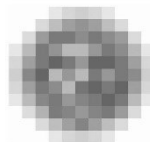
Executive Summary

CYBER SECURITY COMPETITION

SECONDARY SCHOOLS

CZECH REPUBLIC

The school year 2017 / 2018



Petr Jirásek a kolektiv
Praha © 2018

Executive Summary

Substantial growth in the use of information technologies in the current world leads towards a precipitous formation of the information society. On the one hand, the attendant acceleration of communications and the rapid development of digital services promote the growth of the whole society; however, on the other hand, we see a marked growing risk of abusing these technologies. Our society depends increasingly on digital data and communications, and thus successful attacks on the infrastructure or data result in extensive impacts on accessibility and trust and can potentially lead to large economic and material damage. In those cases when attacks, external or internal, are directed towards the critical infrastructure elements, this may ultimately result in putting the security or integrity of whole states in danger.

The response to this situation is a global effort for the quality protection of information and communication technologies against incidents that may jeopardise or change their operations, and this logically leads to a substantial increase in demands for the availability and education of new professionals in cyber security¹. At the same time, we can see much stress being put on the dissemination and deepening of general public awareness, the public being the broadest potential source of mass proliferation of harmful codes (unsecured IoT, laxity towards identity protection, and similar).

The National strategy of cyber security of the Czech Republic and the Action plan of the National strategy of the Czech Republic for 2015-2020 was adopted by a government decree on 25 May 2015. This action plan includes several requirements for the education of experts, members of the public and students at all levels of education. The universities have been trying to respond to this state of affairs and step by step launch (albeit uncoordinated) educational programmes in the cyber security and defence. Secondary schools have not been involved yet in any focused way which explains the low interest of their students in continuing their studies in cyber security at the universities.

The Action plan of National strategy of cyber security of the Czech Republic contains, mostly in Part F, many objectives aimed at the students and teachers of secondary schools, for example: (a) increase the awareness and literacy in cyber security for secondary-school students; (b) contribute to the modernization of secondary-school educational programmes; (c) support the training of experts; (d) prepare methodological learning materials for the teachers; (e) promote talents among students in cyber security in cooperation with the universities.

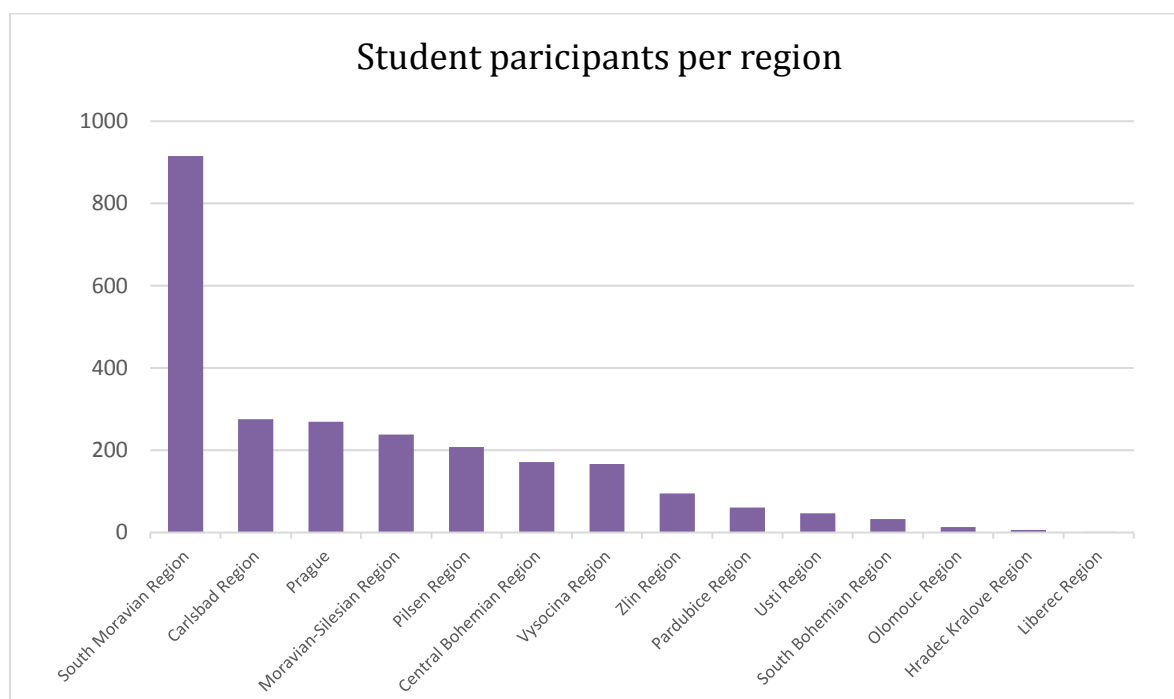
AFCEA Czech Cyber Security Working Group (from now on „Working Group“) has been implementing awareness, educational and professional activities in cyber security and defence since as early as 2004. The group organises, on a regular basis, security seminars for the employees and professionals from among the state sphere, the academia and the private sphere. It put together

¹ Cyber security is a collection of legal, organizational, technological, physical and educational means aimed at providing undisturbed and fault-free operation of the cyberspace. The cyberspace is a digital environment making possible the origin, processing and exchange of information created by information and communication technologies including access to a public network (internet). [Jirásek, Novák, Požár, Výkladový slovník kybernetické bezpečnosti, Praha, 2013. ISBN 978-80-7251-397-0]

and has been updating (as required by the dynamic development of cyber security) the Cyber Security Glossary. The glossary has become an official publication and won several professional awards. The group has also organised many lectures, practical workshops and exhibitions of modern security trends and technologies. The group has close cooperation with the universities.

At the end of 2015, activities of the Working Group gave birth to the idea of a nation-wide cyber security competition aimed at secondary-school students. Preliminary efforts to implement the original idea were substantially accelerated in the spring of 2016 thanks to the offer of the European agency ENISA² to nominate the Czech national team, made up of secondary-school and university students, take part in the European Cyber Challenge (from now on „European finals“).

Thanks to the rapid response and support on the part of selected state institutions, a decision was made in July 2016 to organise the first class of the Czech Secondary School Cyber Security Competition (from now on also „competition“) as early as the school year 2016/2017. The list of state institutions was headed by the National Security Authority, Ministry of the Interior of the Czech Republic, Ministry of Labour and Social Affairs, professional partner associations (in particular ICT union, ČIMIB, NCBI) and there were also academic institutions headed by ČVUT (Czech Technical University), University of Defence, Police Academy, Masaryk University and Brno Technical University.

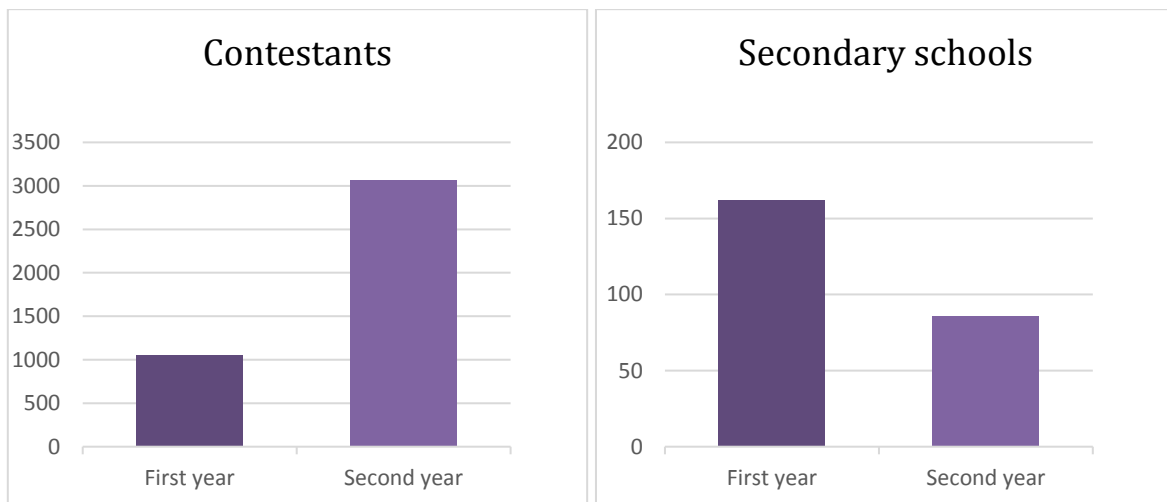


The successful first competition year was followed in the school year 2017/2018 by the second year. The priorities here were to address a higher number of secondary schools, more students and, primarily, to attract a higher number of female students. Hence the Competition Committee approached 14 top regional representatives (governors and the Prague mayor) and set up a PR campaign aimed at increasing the number of female students.

² European Union Agency for Network and Information Security.

Nine out of 14 regions supported the competition actively, and three regions (South Bohemia, South Moravia and Ústí region) supported the competition by providing personal moral support. The Ústí region also nominated its representative as a guest of honour to the Competition Committee. This support of the regions and also the direct communication with the schools contributed to increasing the awareness of the competition and proved itself in the overall number of students in the competition.

Competition Committee was made up of cyber security professionals and faced no easy task. A quality competition had to be prepared in a relatively short time; the competition had one objective of verifying the knowledge of secondary-school students and selecting the best candidates for the European finals; the primary goal, however, was to address the young generation and arouse the interest in cyber security. In order to achieve these objectives, it was, of course, necessary to speak to the teaching staff and prepare for them the learning resources to teach cyber security as well as teach at least the fundamentals of how the cyber space operates.



Again, the competition partners helped significantly with the competition portal. Corpus Solutions, a.s., created a portal for the first and second rounds of the competition using the Lime Surveys technology; DataSpring a.s., provided hosting and technical support for this portal in its data centre. Both these facts contributed to the smooth run of the second year of the competition.



Finalists solving the individual tasks in the finals at the Police Academy of the Czech Republic in Prague

The Competition Committee also decided to enlarge the scope of questions for the separate rounds of competition. The set of questions for the first round was augmented from the areas of

cryptography and cryptoanalysis, SCADA security and the Internet of Things, psychology and sociology. A number of tasks for the second round saw growth of fifty per cent and added were practical security scenarios based on real-time situations and real events. A special competition portal was set up for the finals. The portal had twenty tasks, and the very first task was to gain access to the portal proper as it was protected by a password. We also kept the tradition of team tasks; however, their difficulty was increased, and their number decreased.

More than 3,000 students of both sexes have taken part in the second year of the competition (a growth of almost 200 per cent!), and 2,053 students from 86 secondary schools met all the competition criteria. Growth was also seen in the number of female students taking part in the competition: 766 girls participated in the second year (30.5 per cent of all participants), and this is the highest number of females in all competitions of European Cyber Security Challenge across the EU.



Left: Mr Vladimír Dzurilla (government IT commissioner) hands out the diploma to the winner, Ondřej Bleha. In the background are the representatives of BIS, MoD and NÚKIB. Right: group photo of the top finalists, representatives of the competition committee and competition guarantors.

We kept the well-proven competition division into three rounds. The difficulties and complexities of questions and tasks increase with each succeeding round. The first round was online in September and October 2017 and contained twenty more or less general questions from eight areas of cyber security. The second round was also online in January and February 2018 and had eighteen practical tasks. The third round, the finals, required registration was held at the Police Academy of the Czech Republic in Prague on 19 May 2018. There 37 best contestants had to solve twenty individual tasks in the morning part and three complex team tasks in the afternoon part, with a set time limit. The facilities of the Polices Academy made it possible for the finalists to take part in a number of complementary activities (professional conference, expert workshops, visits inside the Police Academy, exhibitions of partners, „job fair“, and similar) and thus to get acquainted with modern technologies, new trends in cyber security areas, and professionals. Almost 700 professionals including students and teachers from the elementary and secondary schools in the Czech Republic took part in the complementary activities.

Personal visits of representatives of the competition committee have been again part and parcel of the competition. Members of the competition committee made more than seventy specialised presentations at the secondary schools in the Czech Republic and addressed more than 9,000 students and about 350 of teachers. This activity has always been met with great reception and

prepares the ground for further cooperation and more engagement of the remaining secondary schools in the other editions of the competition.

The final round provided the candidates of the Czech national team in the European finals. Their participation was confirmed at a summer camp organised jointly by the Czech Technical University, the Masaryk University in Brno and the University of Defence. A number of other subjects joined the summer camp this time, among others Military Intelligence, BIS (Security Information Service), National Cyber and Information Security Agency, Ministry of Defence – unit CIRC, University of West Bohemia, and professionals from the private sphere – CETI, ERA-BHC and others, for example.

The Competition Committee, on behalf of its members and organisers, wishes to thank all partners and supporters of the second year of the competition who have contributed to its smooth progress. The competition was organised as a non-profit, non-loss and low-cost event engaging volunteers. **The volunteers have spent more than 2,000 hours during the preparations and the course of the competition.** There would have been no competition without the help and active support of all the subjects mentioned above. Thank you ever so much.



Participants of summer camp in the Cyber polygon of Masaryk University in Brno.

Particular thanks are due to the Police Academy of the Czech Republic in Prague and its employees. It would be impossible to organise the national finals and all the accompanying events without their help. A very special thank-you is now due to Mr Milan Kný, a member of the academic staff at the Faculty of security management at the Police Academy of the Czech Republic in Prague. Mr Kný is a former member of the Competition Committee and coordinated most of the activities related to the organising of the National Finals on the premises of the Police Academy. Thank you, dear Mr Kný.

The organisers and the Competition Committee have profited from the experience of the second year of the competition and have decided to continue the work so well begun: we will organise the third edition of the competition in the school year 2018/2019. Our objective is to further the awareness of secondary-school students in the issues of cyber security, motivate young people towards a deeper (not merely a superficial or user-only) interest in modern technologies, and, last but not least, give them a chance to compare their knowledge with their peers in a fair and open contest in their schools, regions and in the Czech Republic.

We look forward to your participation and support.

Competition Committee.



For more information, please contact:

Competition Committee
Czech Secondary School Cyber Competition
Cyber Security Working Group
AFCEA Czech Chapter
kybersoutez@kybersoutez.cz
www.kybersoutez.cz

© Cyber Security Working Group,
AFCEA Czech Chapter,
All rights reserved.

Generální partneři



Infrastruktura soutěž. portálu



Tvůrce soutěžní aplikace



Mediální partneři



Odborní partneři



Převzali záštitu



Národní úřad
pro kybernetickou
a informační bezpečnost

